Implementing Agency Performance Measures Subcommittee

Performance Measures Development (Phase 1)

Status Report

April 30, 2007

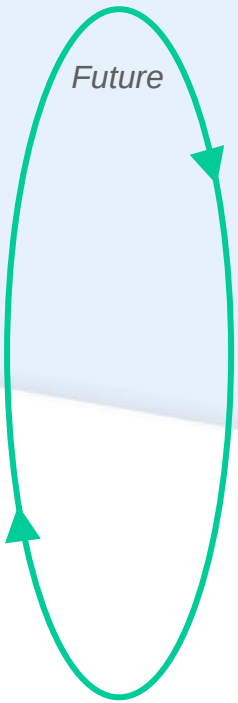
Agenda

- Introduction
- Water Quality
- Ecosystem Restoration
- Levee System Integrity
- Water Supply Reliability

Introduction

June 2007

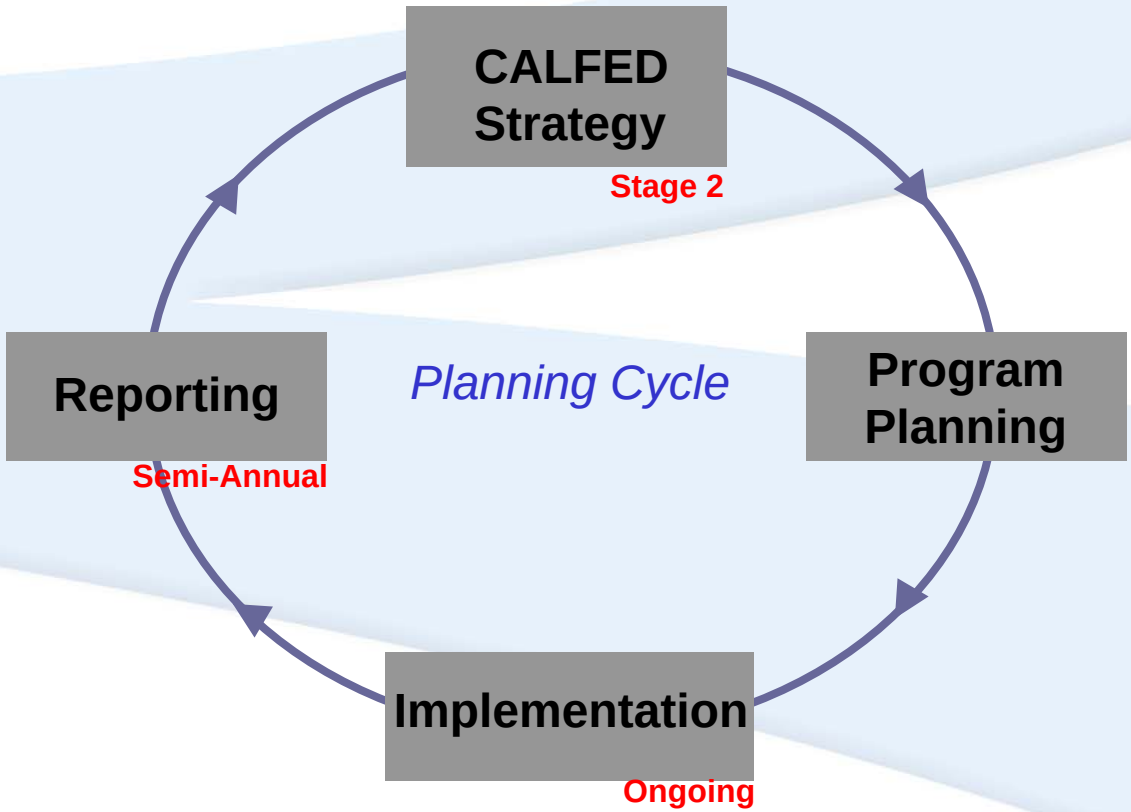
- Phase 1 – Initial Measures and Planning:
  - ✓ Initial (sample) set of performance measures, as well as goals/objectives
  - ✓ Implementation planning



- Phase 2 – Data Analysis:
  - ✓ Further refine conceptual models and supporting data
  - ✓ Add/refine as needed
- Phase 3 – Reporting and Additions:
  - ✓ Produce and publish public report
  - ✓ Linked to refined goals and objectives identified
- Phase 4 – Refinement:
  - ✓ implement the Plan
  - ✓ Further refine, adaptive management

Introduction

Structured Planning Cycle



Integration

- Policy
- Delta Vision
- BDCP
- DRMS
- DRERIP
- CMARP
- Etc.

Input

- Science
- Monitoring
- Environment
- Uncontrolled Factors
- Learning
- Continuous Improvement

Water Quality

Water Quality

Goals/Objectives

- Document Goals/Objectives, percent complete: 90%
- Overall Goal: *Continuously improve Delta Water Quality for all uses including in-Delta environmental and agricultural uses.*

Objectives	
Drinking Water	Provide safe, reliable, affordable drinking water at the intakes (**source water**)
	Provide safe, reliable, affordable drinking water using a cost-effective combination of alternative source waters, source control and treatment technologies (**tap**)
Toxicity (*direct*)	Reduce toxicity to aquatic organisms in water and sediments
	Improve methods for identifying causes of toxicity
Mercury (*bio-accumulation*)	Improve or maintain water and sediment quality to levels that do not adversely affect humans
	Improve or maintain water and sediment quality to levels that do not adversely affect aquatic organisms and wildlife

Water Quality

Performance Measures Summary

- Performance Measures Development, overall percent complete: 80%

	Performance Measure	***Target***
Drinking Water	➢ Water quality at Delta intakes	➢ 50 ug/L bromide, 3 mg/L total organic carbon… ➢ …or ELPH
	➢ Drinking water quality at the tap	➢ Percent compliance
Toxicity	➢ Toxicity to aquatic test organisms (water or sediment)	➢ No toxicity to aquatic test organisms
	➢ Causes and sources of toxicity identified	➢ Percent of toxicity for which the cause/source is determined
	➢ Significance of contaminants in POD	➢ Contaminants ruled in or out as potential factors in POD
Mercury	➢ Mercury in fish consumed by humans	➢ Draft in TMDL
	➢ Mercury in biosentinel species	➢ Draft in TMDL
	➢ Mercury in water and sediment	➢ Draft in TMDL

Water Quality

Implementation Plan – Monitoring Needs

- Implementation Plan,
  overall percent complete: 50%

- Monitoring Needs:

Information & Monitoring Needed	
➢ Drinking Water	➢ Drinking water constituents of concern upstream of Delta boundaries
	➢ Conduct studies to improve understanding of the linkage between source water quality, water quality at the intakes, and treated water quality
➢ Toxicity	➢ Gather & analyze toxicity monitoring and research data collected since 2001
	➢ Comprehensive monitoring for toxicity in the Delta and upstream tributaries
	➢ Conduct studies to improve tools for identifying causes of toxicity
➢ Mercury	➢ Inventory data sources for indicators identified in Phase 1 and gather and analyze priority data sets
	➢ Use available data to expand on human health risk sites

Water Quality

Implementation Plan – Next Steps

Next Steps	*Target Date*
➢ Develop comprehensive monitoring & research plan (**all indicators**)	➢ Jan 08?
➢ Gather additional data on Delta hydrodynamics (**all indicators**)	➢ TBD
➢ Update **drinking water** database, refine conceptual models, develop analytical models, and define the human health basis for potential water quality objectives ➢ Support the CALFED **Drinking Water** Quality Program final assessment	➢ Mid to late 2008 ➢ Late 2007
➢ Gather and analyze existing data on water column and sediment **toxicity** ➢ Update strategy to address unknown **toxicity** ➢ Refine **toxicity** conceptual models ➢ Conduct studies on biomarker indicators of **toxicity**	➢ FY 07-08 ➢ TBD ➢ May 07 ➢ 07-08
➢ Compile and assess available data on **mercury** to identify gaps and research needs and refine conceptual models ➢ Continue methyl and total **mercury** monitoring in biosentinel and sport fish and in water and sediment ➢ Continue assessment of human consumption of contaminated fish and risk communication ➢ Identify total and methyl **mercury** sources and assess their relative importance	➢ Ongoing: Some projects complete in mid-2008
➢ Support studies to evaluate methods to reduce total **mercury** and mercury methylation	➢ TBD

Water Quality

Implementation Plan – Issues/Challenges and Resources Needed

	Issues/Challenges and Resources	*Action*
1	➢ There is need to improve coordination with ERP and other CALFED program elements (**all indicators**)	➢ PM Subcommittee/ACT foster integration ➢ Identify workplan task for coordination
2	➢ CMARP development has stagnated (**all indicators)**	➢ Prioritize CMARP in early PM implementation phase
3	➢ **Mercury** and **toxicity** targets, either in numeric or narrative form, will be developed in coordination with Regional and State Water Board staff	➢ Coordinate with Water Boards and natural resource agencies
4	➢ **Mercury** indicators likely will be revised per Regional and State Water Board work	➢ Coordinate closely with Water Boards ➢ Seek input from ISB liaisons
5	➢ 3 PY and $250K contract funding (per year) is needed (only Water Boards' needs identified) – Currently no additional funding has been secured (i.e., Prop 84)	➢ Clearly define work to be done with current resources

Water Quality Discussion

Ecosystem Restoration

Ecosystem Restoration

Goals/Objectives

- Documentation of Goals/Objectives, 95% complete

Goals (ERP Strategic Plan, 2000):

Ecosystem Restoration Goals
Recovery of at-risk native species (R, r, m species)
Rehabilitate natural processes in the Bay-Delta estuary and its watershed.
Maintain and/or enhance populations of selected species for sustainable harvest (H taxa).
Protect and restore functional habitat types in the Bay-Delta estuary and its watershed.
Control invasive species.
Improve and/or maintain water and sediment quality conditions; and eliminate toxic impacts to aquatic organisms, wildlife, and people.

Ecosystem Restoration

Performance Measures Summary

- Performance Measures Development, 10% complete

Performance Measures Snapshot:

Objective	*Performance Measure*
Recovery of 19 “R” species	Minimum Viable Population: risk of extinction <5%/100 years
Contribution to recovery of 25 “r” species	Stable or Positive Population trends
Sustenance of 8 harvested taxa	Double from Baseline or maintain stable populations
Control of invasive species	Number of colonizations/no net increase in range or dominance of extant invaders
Reduction or elimination of impacts from pollutants	Survival & reproduction; Aquatic life criteria and human health guidelines; TMDL’s; bioassays/biomarkers
Conservation of native species (“m”)	Population trends for component species
Biodiversity and environmental integrity	Diversity indices (e.g., IBI, etc.?)

Ecosystem Restoration

Implementation Plan – Monitoring Needs

- Implementation Plan, overall percent complete: 5%
- Monitoring Needs: Overlap with CMARP 3, IEP, AFRP, etc.

Required Monitoring	***Attributes***
➢ Minimum Viable Populations (Resilience)	➢ Size, Distribution, Connectivity, Diversity, Reproduction
➢ Population Trends	➢ Population estimates over time (IEP)
➢ Invasive Species Control/Eradication	➢ See Delta Ecological Survey 2005 (NIS) for monitoring recommendations
➢ Contaminant Impacts	➢ Survival and Reproduction; Biomarkers/Bioassays & related approaches
➢ Maintaining Desirable Ecosystem State/Diversity	➢ Diversity Indices, as appropriate

Ecosystem Restoration

Implementation Plan – Next Steps

Next Steps	*Target Date*
➢ Thorough assessment and review of performance measure efforts to date	➢ September 2007
➢ Interim performance measures	➢ November 2007
➢ Integration with the Water Quality PM Subgroup	➢ Ongoing
➢ Coordination of roles and responsibilities with CMARP III	➢ June 2007
➢ Integrate with NMFS Salmonid Recovery Plan	➢ Fall 2007
➢ Integrate with Delta Native Fishes Recovery Planning	➢ Ongoing
➢ Finalize tier 2-4 species models with DRERIP	➢ January 2008

Ecosystem Restoration

Implementation Plan – Issues/Challenges and Resources Needed

	Issues/Challenges and Resources	*Action*
1	➢ ***Staffing*** currently inadequate	➢ DFG addressing
2	➢ ***Coordination*** with CMARP III	➢ Pending Science Program
3	➢ ***Coordination*** with DRERIP	➢ Active, Awaiting models
4	➢ ***Coordination*** with Non-Native Species Invasive Species Program	➢ TBA
5	➢ ***Coordination*** with NMFS Technical Recovery Team	➢ Active, ongoing
6	➢ ***Coordination*** with USFWS Delta Native Fishes Recovery Planning Team	➢ Active, ongoing
7	➢ ***Coordination*** with Interagency Ecological Program	➢ TBA
8	➢ ***Coordination*** with other initiatives and monitoring programs	➢ TBA

Ecosystem Restoration Discussion

Levee System Integrity

Levee System Integrity

Goals/Objectives

- Documentation of Goals/Objectives, overall percent complete: 90%
- **Goal**: To reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of delta levees

Levee System Integrity Objectives	
1)	Improve and maintain Delta levees to the Public Law standard (PL 84-99)
2)	Improve and maintain levees at key Delta locations to a level commensurate with the benefits protected
3)	Enhance existing emergency management and response capabilities to protect critical Delta resources in the event of a disaster
4)	Identify risk to Delta levees from seismic loading events and develop recommendations to reduce levee vulnerability and improve their seismic stability for all appropriate loading conditions

- Performance Measures Development, overall percent complete: 50%

Performance Measure Snapshot	

1) **Number of levee miles maintained.** *(Target: At the end of Stage 1, at least 650 levee miles meeting standard)*
2) **KIM and RKIM** *(Target: 0). Overall measure of net work to achieve the standard. Delta KIM, and island-by-island KIM. RKIM is risk associated with being less than the standard.*
3) **Number of levee miles or islands/tracks with enhanced, above PL84-99, flood protection.** *(Target: TBD). Currently don't have a good basis for a target.*
4) **Number of levee miles or islands/tracks with subsidence control measures in areas that affect levee stability** *(Target: TBD). No target yet, no baseline yet. Note: related criteria is BMP's -- best management practices.*
5) **Amount of acceptable dredge material re-used in levee restoration** *(Target: TBD)*
6) **Number of levee miles that have risk reduction measures. (***Target: TBD).*
7) **Number of improvements to emergency response.**
8) **Number of miles of anomalous levees repaired** *(Target: TBD).*

Levee System Integrity

Implementation Plan – Monitoring Needs

- Implementation Plan, overall percent complete: 50%

Required Monitoring	*Monitoring Gaps and Needs*
➢ LiDAR and ground surveys (baseline for KIM and RKIM, delta completely surveyed in 2007, flight data available 8/07, tracking system under development) ➢LiDAR surveys every 5-7 years ➢RKIM risk analysis, increased probability of failure ➢ Periodic land surveys by Reclamation Districts	➢ Future LiDAR and ground survey timetable? ➢ Apply DRMS to RKIM risk analysis

Levee System Integrity

Implementation Plan – Next Steps

Next Steps	*Target Date*
➢ Periodic Surveys	➢ LiDAR 2007, every 5-7 years thereafter ➢ Ground surveys ongoing
➢ Use relevant information from DRMS study to apply towards developing RKIM risk analysis and refining Performance Measures	➢ 2008-2009
➢ Develop and refine PMs and conceptual models to link drivers and outcomes	➢Ongoing
➢ Develop and refine targets	➢2007
➢ Develop KIM and RKIM baseline	➢2007
➢ Identify linkage with other CALFED programs.	➢2007-2008
➢ Develop web-based reporting system	➢2007-2008

Levee System Integrity Discussion

Performance Measures Update

Water Supply Reliability

Prepared for

Bay Delta Public Advisory Committee

Prepared by

California Department of Water Resources

April 30, 2007

Goals/Objectives

Percent complete: 80%

Water Supply Reliability Goals/Objectives
Enhance Stability of Delta Water Supplies
End User Supply Reliability

Enhance Stability of Delta Water Supplies

Performance Measures Summary

Percent complete: 80%

Performance Measure	*Target*
➢**Enough supply to meet the regulatory baseline and contractual agreements for the protection of drinking water quality and ecosystem protection**	➢**Zero incidences of not meeting water quality standards, flow requirements, or other flow related agreements**
➢**Deliver a predictable amount of water from the Delta over the long-term– after meeting WQ standards and all regulatory requirements**	➢**Provide a probability of delivery for a given year**

Enhance Stability of Delta Water Supplies

Monitoring Requirements (Indicators)

Percent complete: 75%

Required Monitoring	*Gaps*
➢ **Annual number of incidences when water quality objectives, flow requirements, or other flow related agreements are not met**	➢ **None**
➢ **Annual amount of water delivered**	➢ **None**
➢ **A description of the likely factors that affected deliveries**	➢ **None**

Enhance End User Reliability

Performance Measures Summary

Performance Measure	*Target*
➢ **Provide a predictable amount of water from the Delta in the short-term**	➢ **Zero uncompensated reductions in scheduled deliveries**

Enhance End User Reliability

Monitoring Requirements (Indicators)

Required Monitoring	*Gaps*
➢ The amount of water scheduled to be delivered in the current year	➢None
➢The amount of water actually delivered in the current year	➢None
➢ The amount of uncompensated reductions in scheduled deliveries due to Delta export reductions resulting from actions taken to protect Delta fish species.	➢None

Next Steps

Next Steps	*Target Date*
➢ **Coordinate with the California Water Plan update, Delta Vision, and DRMS processes to include Delta Risk management and Delta sustainability information.**	➢ **Ongoing**
➢ **Bring the performance measures proposal to the BDPAC Water Supply Subcommittee to allow it to provide recommendations to the BDPAC on how to proceed.**	➢ **May 2007 – June 2007**

Issues/Challenges and Resources Needed

Issues/Challenges and Resources	*Action*
➢ **Effort to develop indicators and targets for Enhance Stability of Delta Water Supplies**	➢ **Will be met using existing staff within DWR and Reclamation**
➢ **Further engagement and cooperation with local and regional agencies will be needed to develop indicators, targets, and the data needed for accurate analysis regarding end User Supply Reliability**	➢ **Coordination with California Water Plan Update Process**

Issues/Challenges and Resources Needed

Issues/Challenges and Resources	*Action*
➢ **Water Supply Reliability program may require resources dedicated within the Ecosystem Restoration and Water Quality subgroups to develop science based environmental water demand targets for tributaries to the Delta, in Delta, and Delta out flow.**	➢ **It is likely that a significant amount of the environmental water demand targets will be developed in ongoing efforts, (e.g. Bay-Delta Conservation Plan); however, this information may not be available in the near future and interim targets for environmental demands may need to be developed.**

Water Supply Reliability Discussion

Thank You!